



Original Communication

The medico-legal scene in Dubai: 2002–2007

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ABSTRACT

Various characteristics of the medico-legal scene in Dubai are described, along with an overview of all cases examined over a period of 6 years. During the period of study, a total of 17,683 cases were examined in the Department of Forensic Medicine of Dubai Police General Headquarters. This constituted a yearly average of (2947.16). The average annual increment was 11.13%, the percentage of increase between 2002 and 2007 being 68.96%. Of these 10,165 (57.48%) were clinical cases of injuries, 5404 (30.56%) postmortem examinations, 1525 (8.62%) clinical cases of sexual crimes, 409 (2.3%) age estimations, 58 (0.32%) medical responsibility, 20 (0.11%) criminal abortion, 61 (0.34%) civil actions and 38 (0.21%) miscellaneous cases. Of postmortem examinations, 4846 (89.7%) of them were males and 558 (10.3%) females. The age ranged from (0–90) years, with a mean age of 40.5 years. The peak incidence was in the age group (20–50) years, where the extremes of age were least represented (Fig. 1). Only in 361 cases (6.68% of the grand total) the deceased was a local citizen. Autopsies amounted to 394 cases, which constituted 7.29% of the total deaths examined. The four manners of death in descending order of frequency were natural 3003 (55.57%), accidental 1727 (32%), suicidal 498 (9.2%), homicidal 164 (3%). The manner was undetermined in 12 (0.22%) of the cases over the 6 year period.

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1. Introduction

Medico-legal services commenced in Dubai in 1980, when Dubai Police established a Department of Forensic Medicine within the premises of its General Headquarters. Initially, the staff consisted of one forensic medical examiner and few clerking personnel. For 2 years, the department occupied a temporary building, which has facility for examination of clinical cases, i.e. injuries, age assessment and sexual crimes. Postmortem examinations were carried out in a basic mortuary at the nearby hospital.

In 1982 a proper building was erected within the perimeter of the Police Headquarters. It contained an autopsy room with two autopsy tables, a body store with a capacity of 48 bodies, a clinical examination room, a fixed as well as a mobile X-ray units, and offices for two doctors and clerical staff. A second doctor was appointed at that stage, and a histopathology technician. A mobile body store with a capacity of 32 bodies was supplied, as well as two hearses for body transfer.

In August 1997, the author was appointed and so the number of forensic medical examiners became three. On the author's advice, a project of modification and extension of the department was approved for implementation. The project was justified by the steady

increase of work load. An airplane crash in October 1997, resulted in 59 fatalities, emphasized the need for expansion. The project was concluded in 2001, at which time the author was made Director of the Department.

Currently, six forensic medical examiners work in the department in addition to the director. The addition of new cold storage that can accommodate 80 bodies, increased the total capacity to 128 bodies. Two autopsy rooms are available, one with three autopsy and three dissecting tables, and the second is septic room with one autopsy and one dissecting table. All tables are stainless steel with down draft air flow and hydraulic height adjustment, and rapid transfer properties. Hydraulic body lifters are also provided. The histopathology laboratory was also modernized.

The department is the sole medico-legal service provider in Dubai, which has a population of just over 1.3 million. The Director of Public Prosecution (DPP) and its deputies, as well as the directors of the seven police stations refer cases for examinations. Referred cases include clinical examinations as well as postmortem examinations. Many deaths are disposed of on grounds of external examination. Autopsies are only performed, however, by a warrant from the DPP; on request of the medical examiner. The general aim is to determine the cause and manner of death. It must be emphasized that this study does not represent all deaths that took place in Dubai. Hospital deaths from natural causes and many home deaths are not referred for medico-legal examination.

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Clinical examinations constituted injuries, sexual crimes, age assessments, medical responsibilities, criminal abortions and other miscellaneous cases.

The legal authorities refer injured parties to determine the fact of injury or harm, causative agent if possible, duration of treatment and disability incurred if any. Based on that medico-legal assessment the legal authorities determine the degree of culpability involved. Types of cases range from simple fist fights to attempted homicide. The courts refer victims of road traffic accidents suing for compensation to determine the percentage of disability which helps the judges in the determination of rewarded damages.

The definition of sexual crimes in UAE is in accord with the Islamic tradition.¹ Any sexual relation outside wedlock is considered unlawful and prosecutable. Obviously, legal authorities do not spy on people in order to prosecute them for consented sexual offenses, but they do investigate when it comes to their attention through an official complaint. The complainant in consented sexual crimes would be a spouse, an employer in cases of servants or a hospital in case of a birth of an illegitimate child. Sometimes the complainant would be the female when her male partner fails to fulfill his promise of payment or marriage, especially consequent on pregnancy. People involved in heterosexual or homosexual indecent behavior in public places are sometimes brought in by the police who are usually called by witnesses. Forcible sexual intercourse, whether hetero or homosexual come to the attention of the legal authorities through a complaint by the victims.

2. Material and methods

The Department of Forensic Medicine of Dubai Police General Headquarters serves Dubai (population of 1.3 million) and occasionally the Northern Emirates. Local people constitute less than 15% of the total population. Foreign expatriates, being the majority, are largely laborers from the Indian subcontinent. Over 200 nationalities represent the spectrum of foreign inhabitants of Dubai. This mosaic population is reflected on the cases examined in our department.

There had been no proper statistical registration in the department prior 2001. Once made director, the author commenced proper data collection and analysis, in addition to other progressive developments of the department. Information forms were designed to categorize different types of cases, in which doctors are required to fill in information after they have finished writing reports. Information from these forms was transferred in special registers. This procedure was carried out from day to day and results tabulated at the end of each month. A yearly report was compiled at the end of each year.

In the period from January 2002 until the end of 2007, 17,683 cases were examined in the Department of Forensic Medicine of Dubai Police General Headquarters (Table 1). This constituted a

yearly average of (2947.16). The average annual increment was 11.13%, the percentage of increase from 2002 and 2007 being 68.96%, the latter year count exceeded the former by 1520 cases. The count of 2007 topped that of 2006 by 295 cases, which constituted an annual increase of 8.6%, a 1.3% more than the percentage of population growth of Dubai.²

Deaths were classified according to variables including sex, age, manner of death, cause of death and anatomical findings at post-mortem examination explaining the death. Manner of death is defined as the circumstances of death or how the cause came about, e.g. natural, accidental, suicide or homicide. Cause of death is defined as the disease or injury that started a train of events or of physiological derangements leading to death.

Fatalities with unknown manner of death are deaths caused by, for example, drowning or blunt injury, but with obscure circumstances. Deaths with unascertained cause due to decomposition or in cases of bony human remains were included in this category.

Examination of the bodies at the locus or crime scene is mandatory for forensic pathologists in Dubai. This practice; although painstakingly inconvenient for the doctors, proved to be very useful, especially to ascertain the manner of death in certain irregular suicides that would be suspected to be homicides and vice versa.

Anatomical findings at postmortem examination explaining the death are diseases and lesions by organ, as well as signs of drowning, strangulation, fire burns, electrical burns, aspiration and combined findings or no anatomical findings.

Clinical examinations totaled 12,279, of these 10,165 were injury cases, 1525 sexual crimes, 409 age assessments, 58 medical responsibilities, 20 criminal abortions, 61 civil actions and the rest ($n = 41$) were miscellaneous cases (Table 1).

Cases of injuries averaged 1694.16 per year, which constituted 57.48% of the total cases examined annually. Most cases were males (81.8%), and of these 35.2% were simple fist fights. Domestic husband wife fights constituted 5.32% of all cases.

Cases of sexual crimes examined averaged 254.16 per annum. It was classified according to the gender and age of the parties involved, whether consented or forcible, and if pregnancy was an issue in the crime.

Age estimation is required in civil and criminal events. In civil cases, the drivers' licensing authority refers applicants for the test to ascertain their age of majority. That was needed mainly when expatriates setting for the driving test lack an authenticated birth certificate. Ascertaining age of majority is also important in criminal proceeding of the court of law.

Medical responsibility mainly involved live patients suing hospitals for damages. Except for the few cases where the medical facts are so obvious that we are able to reach a decision, we usually act as intermediary between the courts and committees of specialist doctors, who are assigned to investigate the case.

Table 1

All cases examined during the 6-year period of the study classified by type including postmortem examinations and clinical cases.

	2002	2003	2004	2005	2006	2007	Total 2002–2007	Average	%
<i>Total cases 2002–2007</i>									
Deaths	623	642	782	916	1113	1328	5404	900.6	30.56
Injuries	1303	1443	1673	1845	1925	1976	10,165	1694.1	57.48
Sexual crimes	207	183	233	263	295	344	1525	254.1	8.62
Age assessments	64	6	81	107	38	43	409	68.1	2.3
Medical responsibilities	4	7	5	9	21	12	58	9.6	0.32
Criminal abortion investigations	2	0	0	1	0	0	3	0.5	0.016
Criminal abortion cases	0	0	2	3	12	3	20	3.3	0.11
Civil action	1	14	13	13	13	7	61	10.1	0.34
Miscellaneous	0	2	1	12	12	11	38	6.3	0.21
Total	2204	2367	2790	3169	3429	3724	17,683	2947.1	

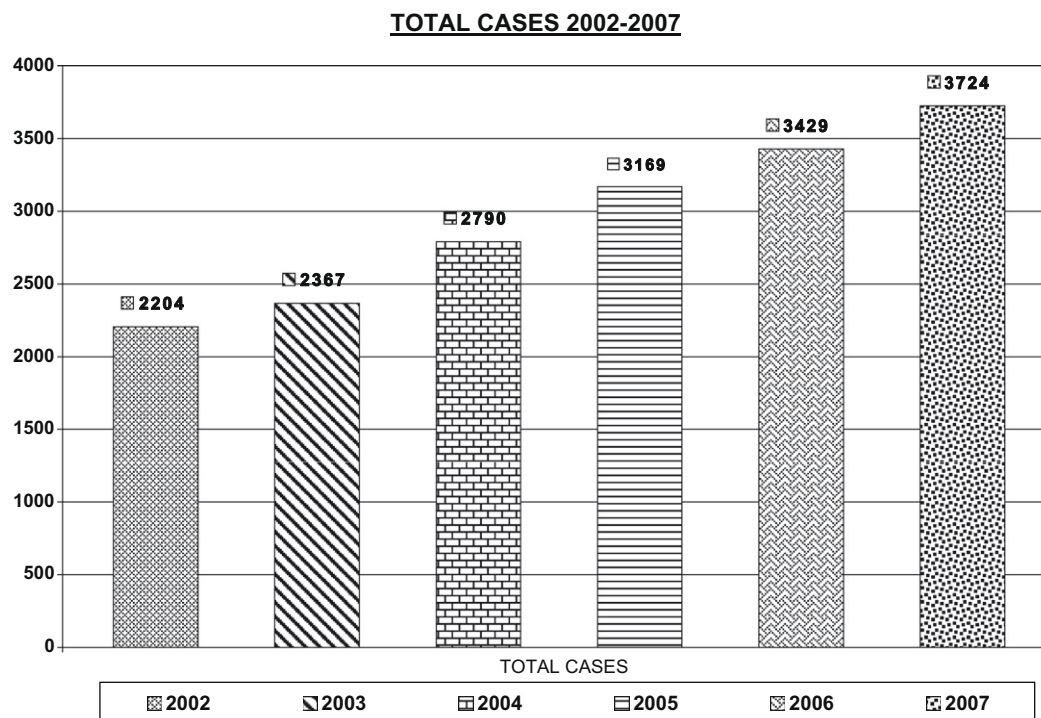


Fig. 1. A graph showing the steady increase of the total cases examined annually in the forensic medicine department.

3. Results

During the period covered by the study, 17,683 cases were examined by request of the police, the prosecution or the courts and reported to the respected agency. Of these 10,165 (57.48%) were clinical cases of injuries, 5404 (30.56%) postmortem examinations, 1525 (8.62%) clinical cases of sexual crimes, 409 (2.3%) age estimations, 58 (0.32%) medical responsibility, 20 (0.11%) criminal abortion, 61 (0.34%) civil actions and 38 (0.21%) miscellaneous cases (Fig. 2).

3.1. Postmortem examinations

All deaths examined totaled 5404; 4846 (89.7%) of them were males and 558 (10.3%) females. The age ranged from (0–90) years, with a mean age of 40.46 years. The peak incidence was in the age group (20–50) years, where the extremes of age were least represented (Fig. 1). Only in 361 cases (6.68% of the grand total) the deceased was a local citizen. Autopsies amounted to 394 cases, which constituted 7.29% of the total deaths examined.

3.1.1. Manners of death

The four manners of death in descending order of frequency were natural 3003 (55.57%), accidental 1727 (32%), suicidal 498

(9.2%), homicidal 164 (3%). The manner was undetermined in 12 (0.22%) of the cases over the 6-year period (Table 2).

3.1.2. Causes of death

The three most predominant causes of natural deaths were coronary artery disease (87.3%), senility (1.5%) and malignancies (1.1%).

Accidental deaths were predominantly due to traffic accidents, amounting to 804 cases (46.6%) of the overall accidental fatalities.

The predominant method of suicide was hanging (80%), followed by fall from height (5.7%), drowning (2.8%), extensive body burns (2.6%), ingestion of corrosive liquids (1.4%) and ingestion of insecticides (1.4%).

The most common methods of homicide were stabbings (36.5%), blunt trauma to the head (21.4%), ligature strangulation (11.9%), smothering (6.9%), manual strangulation (5%) and cut-throat (2.5%).

3.1.3. Autopsy findings explaining the death

Evidence of coronary artery disease, mainly severe atherosclerosis was the predominant findings of most sudden natural deaths. Other organ pathologies were encountered in other deaths from natural causes according to the underlying disease in each case.

Table 2

All deaths examined during the 6-year period of the study classified by manner of death.

	2002	2003	2004	2005	2006	2007	Total	Average	%
<i>Manner of death 2002–2007</i>									
Natural	350	392	455	547	574	685	3003	500.5	55.5
Accident	187	162	237	242	405	494	1727	287.8	31.9
Suicidal	57	67	70	89	102	113	498	83	9.2
Homicidal	29	19	16	36	31	33	164	27.3	3
Undetermined		2	4	2	1	3	12	2	0.22
Total	623	642	782	916	1113	1328	5404	900.6	

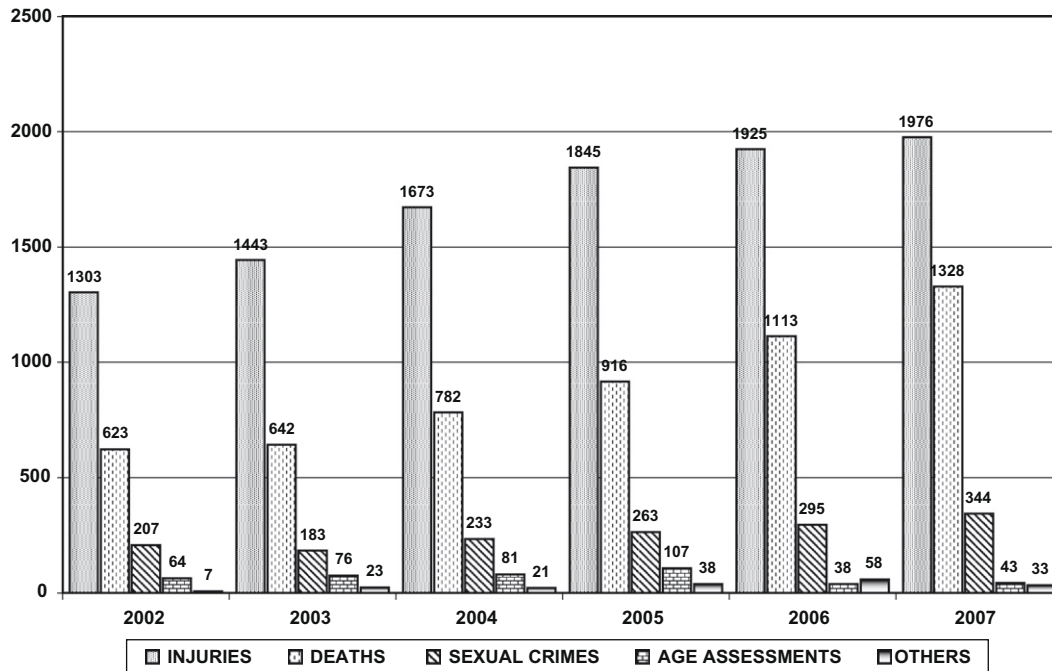
CLASSIFICATION OF ALL CASES 2002 - 2007

Fig. 2. A graph showing the different types of cases examined annually in the department.

Injuries to the head and multiple injuries due to trauma were most often encountered in accidental deaths. In few cases, we demonstrated that what the police thought to be deaths due to traffic accidents were in fact sudden cardiac deaths of drivers that caused a car to impact another or to get off the road.

In homicides and suicides the examination of the locus proved to be very useful. A single case of homicidal strangulation which was staged to simulate suicidal hanging³, and another suicide

which the police thought to be a homicide were examples of such importance.

3.2. Clinical cases of injuries

Live victims of trauma, whether accidental or due to an assault are examined to furnish medico-legal reports to the investigative and legal authorities. To help the lawyers the doctor must confirm

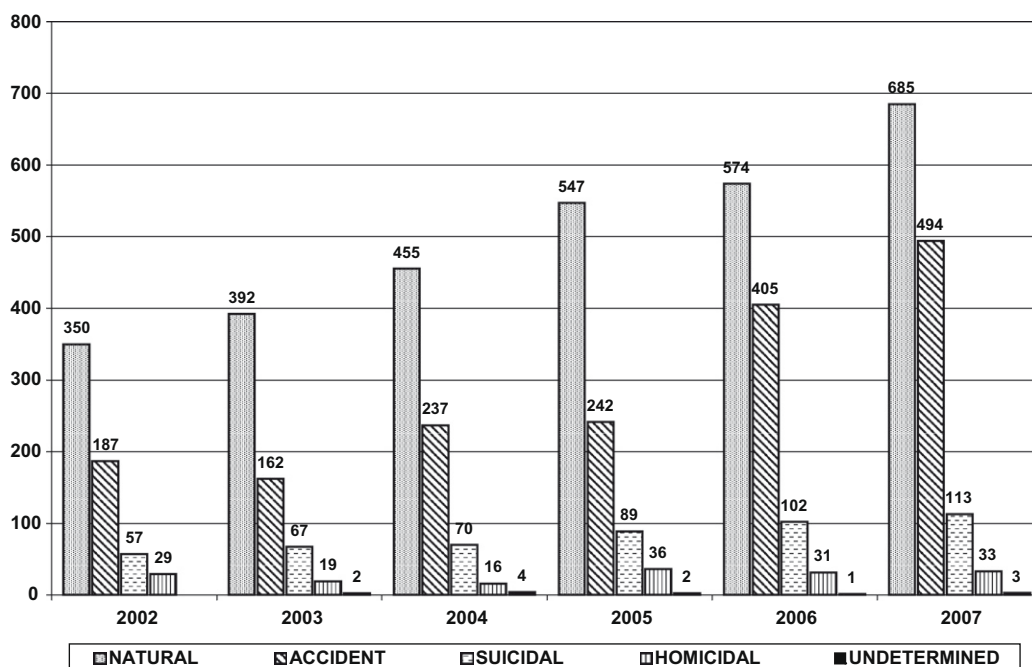
MANNER OF DEATH (2002-2007)

Fig. 3. A graph of all deaths classified by their different manners.

or rule out the occurrence of injury or bodily harm. If an injury is present, the doctor must comment on its causation (blunt or sharp instrument), duration of treatment (whether within 20 days or more) and its outcome (permanent disability or not). The punishment of the perpetrator depends upon the severity of the injury and the weapon used in infliction. In civil cases, where damages may be awarded by the court, the doctor must give an estimate percentage of disability if present.

3.3. Clinical cases of sexual crimes

The duty of the forensic medical examiner is to find an evidence to confirm the occurrence of sexual crime. Physical injuries may indicate the fact that the sexual act was forceful. The only conclusive material evidence of sexual crimes is the presence of semen from one party on the body of the other party or inside one of her/his natural orifices. A torn hymen would be a strong evidence of sexual intercourse, albeit its interpretation must be considered with a great care.¹

3.4. Age estimations

Because of the diversity of population in the UAE, more often than not, people come from countries where laxity in birth registration and certification lead to doubtful record of passport information. When a person's documented age is thought by the authority to be false, on ground of discrepancy with appearance, the help of the forensic medical examiner is sought by the respective authority. This is most often arises when applicants for a driver's license are thought to be younger than 18 years (light vehicles) or 21 years (heavy vehicles). Another group of cases are of criminals, where the courts want to confirm the age of majority before passing the sentence.

3.5. Miscellaneous cases

These constituted cases of medical responsibilities, reports on health in connection with divorce due to harm, examination of non-human bones or animal carcasses.

4. Discussion

The total number of cases examined, 17,683 constituted a yearly average of (2947.16). The average annual increment was 11.13%, the percentage of increase between 2002 and 2007 being 68.96% (Fig. 1). The relatively high increase of case turn-over reflects the population growth of Dubai, which attracts people from all over the world to seek employment and residence in this country with a remarkably booming economy. The average population growth over the past 3 years was found to be 7.3%.²

Cases are examined when referred by the police, the director of public prosecution or the court. The latter referral is almost exclusive to civil actions, which constituted 61 cases only (0.34%). Clinical cases included injuries: 10,165 cases (57.48%), sexual crimes: 1525 cases (8.62%), age estimations: 409 cases (2.3%), medical responsibility: 58 cases (0.32%), criminal abortion: 20 cases (0.11%) and other miscellaneous cases, which amounted to 38 or 0.21% of total clinical cases (Fig. 2).

Of the 5404 cases of postmortem examinations (30.56% of the grand total), 4846 (89.7%) were males and 558 (10.3%) females. This male: female ratio of approximately 9:1 reflects the predominant male population, where most resident expatriates are single males. The male: female ratios of postmortem examinations in Libya and Scotland were reported to be 3:1 and 3:2, respectively.⁴ Other factors common to females in most countries, i.e. being less

prone to violent deaths and less likely to die outdoor and become medico-legal cases, had contributed to that male preponderance.

Only in 361 cases (6.68% of total deaths), the deceased was a local citizen, which reflects the fact that citizens are a minority, constituting less than 15% of the population which is formed largely by non-citizen or expatriate residents.

Autopsies were limited to 394 cases, which constituted 7.29% of the total deaths examined, which reflects the cultural undesirability of autopsy on the part of the director of public prosecution.

Accidents and suicides were the two most frequent unnatural manners of death in the present study. The four manners of death in descending order of frequency were natural 3003 (55.57%), accidental 1727 (32%), suicidal 498 (9.2%), homicidal 164 (3%). The manner was undetermined in 12 (0.22%) of the cases over the 6-year period, the reason was due to cases being skeletalised remains or decomposing bodies (Fig. 3).

Deaths due to natural causes continue to be the leading manner of death for the overall postmortem examinations. This is due to the current system of death referral in Dubai where many home deaths and all dead-on-arrival to hospitals are referred to the forensic medical examiner.

Stab wounds and blunt trauma to the head are the most frequent causes of death in homicides, making 36.5% and 21.4% of homicides, respectively. Next come ligature strangulation (11.9%), and in this group, a case of homicidal strangulation staged to simulate suicidal hanging was reported.³ Homicidal smothering comes next (6.9%), followed by manual strangulation (5%) and cut-throat (2.5%). Gunshot homicides are extremely rare due to strict fire-arm legislation in this country.

Accidental deaths were predominantly due to traffic accidents, amounting to 804 cases (46.6%) of the overall accidental fatalities. Drug overdose constituted 61 cases, 64% of these were Heroin overdose fatalities, where the sign of postmortem sole incisions had been reported in a significant number of cases.⁵ Rare and interesting accidental fatalities had been encountered, i.e. a case of fatal accidental inhalation of sulfuric acid⁶, a few cases of accidental fatal asphyxiation by sand inhalation⁷ and one unusual accidental death from positional asphyxia.⁸

The predominant method of suicide was hanging (80%), followed by fall from height (5.7%), drowning (2.8%), extensive body burns (2.6%), ingestion of corrosive liquids (1.4%) and ingestion of insecticides (1.4%). Many cases of suicidal hangings accompanied by masking and bondage have been encountered.⁹

Conflict of interest

None declared.

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Ethical approval

None declared.

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